DERWENT-ACC-NO: 1999-289380

DERWENT-WEEK: 200204

TITLE: Polyurethane binder with low isocyanate monomer content for production of adhesives, coating materials, resins, laminates, etc.,

INVENTOR: BAUER, A; HENKE, G ; HUEBENER, A ; HUEBNER, A

PATENT-ASSIGNEE: HENKEL KGAA[HENK]

PRIORITY-DATA: 1997DE-1049834 (November 11, 1997)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
DE 19851182 A1	May 12, 1999	N/A	017	C08G 018/10
JP 2001522908 W	November 20, 2001	N/A	042	C08G 018/10
WO 9924486 A1	May 20, 1999	G	000	C08G 018/10
EP 1030869 A1	August 30, 2000	G	000	C08G 018/10
BR 9814131 A	October 3, 2000	N/A	000	C08G 018/10
CZ 200001735 A3	October 11, 2000	N/A	000	C08G 018/10
CN 1278835 A	January 3, 2001	N/A	000	C08G 018/10
HU 200100117 A2	June 28, 2001	N/A	000	C08G 018/10
KR 2001031995 A	April 16, 2001	N/A	000	C08G 018/10
MX 2000004555 A1	February 1, 2001	N/A	000	C08G 018/10

DESIGNATED-STATES: BR CA CN CZ HU JP KR MX PL RU TR US AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

APPLICATION-DATA:

PUB-NO	APPL-DESCRIPTOR	APPL-NO	APPL-DATE
DE 19851182A1	N/A	1998DE-1051182	November 6, 1998
JP2001522908W	N/A	1998WO-EP07094	

November 6, 1998			
JP2001522908W	N/A	2000JP-0520492	
November 6, 1998			
JP2001522908W	Based on	WO 9924486	N/A
WO 9924486A1	N/A	1998WO-EP07094	
November 6, 1998			
EP 1030869A1	N/A	1998EP-0963418	
November 6, 1998			
EP 1030869A1	N/A	1998WO-EP07094	
November 6, 1998			
EP 1030869A1	Based on	WO 9924486	N/A
BR 9814131A	N/A	1998BR-0014131	
November 6, 1998			
BR 9814131A	N/A	1998WO-EP07094	
November 6, 1998			
BR 9814131A	Based on	WO 9924486	N/A
CZ 200001735A3	N/A	1998WO-EP07094	
November 6, 1998			
CZ 200001735A3	N/A	2000CZ-0001735	
November 6, 1998			
CZ 200001735A3	Based on	WO 9924486	N/A
CN 1278835A	N/A	1998CN-0811033	
November 6, 1998			
HU 200100117A2	N/A	1998WO-EP07094	
November 6, 1998			
HU 200100117A2	N/A	2001HU-0000117	
November 6, 1998			
HU 200100117A2	Based on	WO 9924486	N/A
KR2001031995A	N/A	2000KR-0705105	May 10, 2000
MX2000004555A1	N/A	2000MX-0004555	May 11, 2000

INT-CL (IPC): B32B027/18, C08G018/10 , C08G018/72 , C08G018/75 , C08G018/76 , C08J005/00 , C08L075/04 , C09D175/04 , C09J175/04

ABSTRACTED-PUB-NO: DE 19851182A

BASIC-ABSTRACT:

NOVELTY - A polyurethane binder with a low volatile monomer content, containing
a prepolymer with at least two isocyanate groups of different reactivity and a
polyfunctional isocyanate with a lower mol. wt. than the prepolymer, in which
the isocyanate groups are more reactive than the less reactive isocyanate
groups in the prepolymer.

DETAILED DESCRIPTION - A polyurethane binder with a low content of

volatile
isocyanate (NCO) monomer, comprising components (A) and (B), in which the
isocyanate component (B) consists of:

(a) polyurethane prepolymer(s) with at least two differently- bonded NCO
groups, one of which is less reactive than the other; and

(b) an at least difunctional isocyanate with a mol. wt. lower than that of the
prepolymers in (a), in which the NCO groups are more reactive towards
NCO-reactive compounds than the less reactive of the two types of NCO groups in
(a).

INDEPENDENT CLAIMS are included for:

(i) a process for the production of low-viscosity, NCO-containing polyurethane
binders, comprising (c) production of a polyurethane prepolymer (C) from an at
least difunctional isocyanate and polyol component(s) and (d) reacting another
at least difunctional isocyanate (or another such isocyanate and another polyol
component) in presence of the prepolymer, so that most of the NCO groups at the
end of stage (c) are less reactive towards hydroxyl (OH) groups than the NCO
groups in the isocyanate added in stage (d), and the OH:NCO ratio in stage (d)
is 0.2-0.6;

(ii) a process for the production of low-viscosity NCO-containing polyurethane
binders with a low content of NCO monomer by mixing components (C), (D) and
(E), in which (C) is obtained as above, (D) is another NCO- containing
prepolymer obtained by reacting polyol with another polyfunctional isocyanate
with NCO groups more reactive than those in (C), and (E) is a polyfunctional
isocyanate with a mol. wt. lower than (C) and (D), in which the NCO groups are
more reactive than those in (C), and in which the amount of (E) is such that at
least 5 (preferably at least 10) wt% (E) is in the binder after mixing and
after all reactions between the components; and

(iii) an adhesive composition containing (F) an NCO-containing polyurethane
binder as above and (G) compound(s) with a mol. wt. of up to 2500 containing at
least two NCO-reactive functional groups.

USE - For the production of adhesives (especially 1- or 2-component adhesives),
coating materials (especially varnish and emulsion paint), casting resins and
molded products, and for coating and especially gluing objects, especially for
bonding film and for production of laminates (claimed).

ADVANTAGE - A low-viscosity polyurethane binder with a very low content of
volatile isocyanate monomer (less than 1 wt%, or less than 0.1 wt% in the case
of TDI), resulting in a low working temperature and minimal migration of
monomer. Laminates made with this binder show little or no delamination, even
at elevated temperature.

TITLE-TERMS: POLYURETHANE BIND LOW ISOCYANATE MONOMER CONTENT PRODUCE ADHESIVE
COATING MATERIAL RESIN LAMINATE

DERWENT-CLASS: A25 A28 A81 A82 G02 G03 P73

CPI-CODES: A05-G01E; A10-D; A12-A05F; G03-B02E4;

ENHANCED-POLYMER-INDEXING:
Polymer Index [1.1]
018 ; G1934 G1854 G1843 D01 F73 D11 D10 D19 D18 D31 D76 D50 D93 ; R01624 G1854 G1843 D01 D11 D10 D14 D13 D31 D50 D76 D92 F73 ; R17132
G1854 G1843 D01 D11 D10 D14 D13 D32 D50 D76 D93 F73 ; R00137 G1025 G0997 D01 D11 D10 D50 D83 F28 F26 ; R00370 G1558 D01 D11 D10 D23 D22 D31 D42 D50 D73 D83 F47 ; R01392 G1912 G1854 G1843 D01 D11 D10 D19 D18 D31 D50 D76 D89 F73 ; R00735 G1887 G1854 G1843 D01 D11 D10 D19 D18 D32 D50 D76 D93 F73 ; G1912*R G1854 G1843 D01 D11 D10 D19 D18 D31 D50 D76 D89 F73 ; G1887*R G1854 G1843 D01 D11 D10 D19 D18 D32 D50 D76 D93 F73 ; G1843*R D01 F73 G1945*R G1843 ; H0033 H0011 ; H0259 ; H0260 ; P0839*R F41 D01 D63 ; P0964*R F34 D01 ; P1592*R F77 D01 ; P0055 ; P0931*R P1592 P0839 H0260 H0011 H0044 F41 F77 D01 D63 ; P1058*R P1592 P0964 H0260 F34 F77 H0044 H0011 D01 ; P1649 P1592 F77 H0011 D01 ; L9999 L2528 L2506 ; L9999 L2824 ; K9723 ; P1638 P1592 F77 D01 ; L9999 L2620 L2506 ; S9999 S1025 S1014 ; S9999 S1434 ; S9999 S1434 ; S9999 S1434 ; S9999 S1434 ; S9999 S1434 ; S9999 S1434 ; S9999 S1434 ; S9999 S1434 ; S9999 S1434 ; S9999 S1434 ; S9999 S1434 ; S9999 S1434 ; S9999 S1434 ; S9999 S1434 ; S9999 S1434 ; S9999 S1434 ; S9999 S1434
Polymer Index [1.2]
018 ; ND03 ; ND04 ; Q9999 Q6791 ; B9999 B4535 ; B9999 B3725 B3690 ; B9999 B3554*R ; Q9999 Q6644*R ; K9483*R ; K9676*R ; Q9999 Q7158*R Q7114 ; Q9999 Q7169 Q7158 Q7114 ; N9999 N5743 ; N9999 N5743 ; N9999 N5743 ; N9999 N5743 ; N9999 N5743 ; N9999 N5743 ; N9999 N5743 ; N9999 N5743 ; N9999 N5743 ; N9999 N5743 ; N9999 N5743 ; N9999 N5743 ; N9999 N5743 ; N9999 N5743 ; N9999 N5743 ; N9999 N5743 ; N9999 N5743 ; N9999 N5743 ; Q9999 Q7114*R ; Q9999 Q7114*R ; Q9999 Q7114*R ; Q9999 Q7114*R ; Q9999 Q7114*R ; Q9999 Q7114*R ; Q9999 Q7114*R ; Q9999 Q7114*R ; Q9999 Q7114*R

; Q9999 Q7114*R ; Q9999 Q7114*R ; Q9999 Q7114*R ; Q9999 Q7114*R
; Q9999 Q7114*R ; Q9999 Q7114*R ; Q9999 Q7114*R ; Q9999 Q7818*R
; K9461 ; B9999 B5301 B5298 B5276 ; B9999 B3178

SECONDARY-ACC-NO:
CPI Secondary Accession Numbers: C1999-085731

DERWENT-ACC-NO: 1998-378380

DERWENT-WEEK: 200161

TITLE: Low=monomer polyurethane prepolymer with free isocyanate group(s) - obtained by reacting poly:hydric alcohol with asymmetric di:isocyanate of low reactivity, then with more reactive symmetrical di:isocyanate

INVENTOR: BOLTE, G; HENKE, G ; KRUDENSCHEIDT, M ; OMORUYI, A ; KRUEDENSCHEIDT, M

PATENT-ASSIGNEE: HENKEL KGAA[HENK]

PRIORITY-DATA: 1997DE-1000014 (January 2, 1997)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES
DE 19700014 A1 C08G 018/10	July 9, 1998	G	005
ES 2158616 T3 C08G 018/10	September 1, 2001	N/A	000
WO 9829466 A1 C08G 018/10	July 9, 1998	G	000
ZA 9711666 A C08G 000/00	September 30, 1998	N/A	015
AU 9858578 A C08G 018/10	July 31, 1998	N/A	000
NO 9903273 A C08G 018/10	July 1, 1999	N/A	000
EP 951493 A1 C08G 018/10	October 27, 1999	G	000
SK 9900892 A3 C08G 018/10	December 10, 1999	N/A	000
CZ 9902396 A3 C08G 018/10	March 15, 2000	N/A	000
CN 1242782 A C08G 018/10	January 26, 2000	N/A	000
BR 9714451 A C08G 018/10	March 21, 2000	N/A	000
NZ 336543 A C09J 175/04	May 26, 2000	N/A	000
HU 200000484 A2 C08G 018/10	July 28, 2000	N/A	000
MX 9906031 A1 C08G 018/10	November 1, 1999	N/A	000
KR 2000062385 A C08G 018/10	October 25, 2000	N/A	000

EP 951493 B1	June 27, 2001	G	000
C08G 018/10			
JP 2001508097 W	June 19, 2001	N/A	017
C08G 018/10			
DE 59703925 G	August 2, 2001	N/A	000
C08G 018/10			

DESIGNATED-STATES: AU BR CA CN CZ HU JP KR MX NO NZ PL RU SG SI SK TR US VN AT
BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE AT BE CH DE DK ES FI FR GB GR
IE IT LI LU MC NL PT SE SI AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC NL PT
SE SI

APPLICATION-DATA:

PUB-NO	APPL-DESCRIPTOR	APPL-NO	
APPL-DATE			
DE 19700014A1	N/A	1997DE-1000014	
January 2, 1997			
ES 2158616T3	N/A	1997EP-0954425	
December 18, 1997			
ES 2158616T3	Based on	EP 951493	N/A
WO 9829466A1	N/A	1997WO-EP07131	
December 18, 1997			
ZA 9711666A	N/A	1997ZA-0011666	
December 29, 1997			
AU 9858578A	N/A	1998AU-0058578	
December 18, 1997			
AU 9858578A	Based on	WO 9829466	N/A
NO 9903273A	N/A	1997WO-EP07131	
December 18, 1997			
NO 9903273A	N/A	1999NO-0003273	
July 1, 1999			
EP 951493A1	N/A	1997EP-0954425	
December 18, 1997			
EP 951493A1	N/A	1997WO-EP07131	
December 18, 1997			
EP 951493A1	Based on	WO 9829466	N/A
SK 9900892A3	N/A	1997WO-EP07131	
December 18, 1997			
SK 9900892A3	N/A	1999SK-0000892	
December 18, 1997			
CZ 9902396A3	N/A	1997WO-EP07131	
December 18, 1997			
CZ 9902396A3	N/A	1999CZ-0002396	
December 18, 1997			
CZ 9902396A3	Based on	WO 9829466	N/A
CN 1242782A	N/A	1997CN-0181179	
December 18, 1997			
BR 9714451A	N/A	1997BR-0014451	
December 18, 1997			

BR 9714451A December 18, 1997	N/A	1997WO-EP07131	
BR 9714451A	Based on	WO 9829466	N/A
NZ 336543A December 18, 1997	N/A	1997NZ-0336543	
NZ 336543A December 18, 1997	N/A	1997WO-EP07131	
NZ 336543A	Based on	WO 9829466	N/A
HU 200000484A2 December 18, 1997	N/A	1997WO-EP07131	
HU 200000484A2 December 18, 1997	N/A	2000HU-0000484	
HU 200000484A2	Based on	WO 9829466	N/A
MX 9906031A1 June 25, 1999	N/A	1999MX-0006031	
KR2000062385A December 18, 1997	N/A	1997WO-EP07131	
KR2000062385A June 29, 1999	N/A	1999KR-0705952	
KR2000062385A	Based on	WO 9829466	N/A
EP 951493B1 December 18, 1997	N/A	1997EP-0954425	
EP 951493B1 December 18, 1997	N/A	1997WO-EP07131	
EP 951493B1	Based on	WO 9829466	N/A
JP2001508097W December 18, 1997	N/A	1997WO-EP07131	
JP2001508097W December 18, 1997	N/A	1998JP-0529583	
JP2001508097W	Based on	WO 9829466	N/A
DE 59703925G December 18, 1997	N/A	1997DE-0503925	
DE 59703925G December 18, 1997	N/A	1997EP-0954425	
DE 59703925G December 18, 1997	N/A	1997WO-EP07131	
DE 59703925G	Based on	EP 951493	N/A
DE 59703925G	Based on	WO 9829466	N/A

B1 , JP 2001508097 W
INT-CL (IPC): B32B007/12, C08G000/00 , C08G018/10 , C08G018/32 , C08G018/42 , C08G018/48 , C08G018/76 , C09D005/00 , C09D175/04 , C09J175/00 , C09J175/04

ABSTRACTED-PUB-NO: DE 19700014A

BASIC-ABSTRACT:

Low-monomer polyurethane (PU) prepolymers (I) with free NCO groups, obtained
from polyhydric alcohols (II) and at least two di- isocyanates of different
reactivity, where the ratio of NCO groups from the less reactive di-isocyanate
(IIIA) to NCO groups from the more reactive di-isocyanate (IIIB) is not more
than 6:1.

Also claimed is a process for producing (I).

USE - Used with conventional hardeners and/or moisturisers, optionally with
solvents, accelerators and additives, as adhesives for bonding plastics,
metals, paper and especially films. Preferably used at room temperature to 120
deg. C (claimed)

ADVANTAGE - PU prepolymers with a monomer content of at most 1 wt.- and a lower
content of non-volatile di-isocyanate than prior-art prepolymers, showing
longer working times, shorter cure times at room temperature/normal humidity (7
days instead of 14) and higher initial bond strengths.

ABSTRACTED-PUB-NO: EP 951493B

EQUIVALENT-ABSTRACTS:

Low-monomer polyurethane (PU) prepolymers (I) with free NCO groups, obtained
from polyhydric alcohols (II) and at least two di- isocyanates of different
reactivity, where the ratio of NCO groups from the less reactive di-isocyanate
(IIIA) to NCO groups from the more reactive di-isocyanate (IIIB) is not more
than 6:1.

Also claimed is a process for producing (I).

USE - Used with conventional hardeners and/or moisturisers, optionally with
solvents, accelerators and additives, as adhesives for bonding plastics,
metals, paper and especially films. Preferably used at room temperature to 120
deg. C (claimed)

ADVANTAGE - PU prepolymers with a monomer content of at most 1 wt.% and a lower
content of non-volatile di-isocyanate than prior-art prepolymers, showing
longer working times, shorter cure times at room temperature/normal

humidity (7
days instead of 14) and higher initial bond strengths.

CHOSEN-DRAWING: Dwg.0/0

TITLE-TERMS: POLYURETHANE PREPOLYMER FREE ISOCYANATE GROUP OBTAIN REACT POLY
HYDRIC ALCOHOL ASYMMETRIC DI ISOCYANATE LOW REACT MORE REACT
SYMMETRICAL DI ISOCYANATE

DERWENT-CLASS: A25 A81 G03 P73

CPI-CODES: A05-G01E; A08-D01; A10-D; A12-A05F; G02-A02H;

ENHANCED-POLYMER-INDEXING:
Polymer Index [1.1]
018 ; D01 D11 D10 D95 F34 F28 F26 H0204 ; R01392 G1912 G1854 G1843 D01 D11 D10 D19 D18 D31 D50 D76 D89 F73 ; R00735 G1887 G1854 G1843 D01 D11 D10 D19 D18 D32 D50 D76 D93 F73 ; P1069 P1058 P1592 P0964 H0260 F34 F77 H0033 H0044 H0011 P0055 D01 D10 ; L9999 L2528 L2506 ; P1638 P1592 F77 D01
Polymer Index [1.2]
018 ; N9999 N5709
Polymer Index [1.3]
018 ; ND03 ; Q9999 Q6644*R ; K9563 K9483 ; K9574 K9483 ; K9552 K9483 ; K9676*R ; N9999 N6177*R ; B9999 B4988*R B4977 B4740
Polymer Index [1.4]
018 ; A999 A475 ; A999 A146 ; A999 A793 ; A999 A157*R
Polymer Index [2.1]
018 ; D01 D11 D10 D19 D18 D50 F73 ; R00735 G1887 G1854 G1843 D01 D11 D10 D19 D18 D32 D50 D76 D93 F73 ; R01392 G1912 G1854 G1843 D01 D11 D10 D19 D18 D31 D50 D76 D89 F73 ; D01 D11 D10 D50 F28 F26 F29 D82 D83 D84 D85 D86 D87 D88 F34 F41*R ; L9999 L2528 L2506 ; P1638 P1592 F77 D01
Polymer Index [2.2]
018 ; D01 D11 D10 D95 F34 F28 F26 H0204 ; D01 D11 D10 D19 D18 D50 F73 ; R00735 G1887 G1854 G1843 D01 D11 D10 D19 D18 D32 D50 D76 D93 F73 ; R01392 G1912 G1854 G1843 D01 D11 D10 D19 D18 D31 D50 D76 D89 F73 ; P1069 P1058 P1592 P0964 H0260 F34 F77 H0033 H0044 H0011 P0055 D01 D10 ; L9999 L2528 L2506
Polymer Index [2.3]
018 ; D01 D11 D10 D95 F34 F28 F26 H0204 ; D01 D11 D10 D50 F28 F26 F29 D82 D83 D84 D85 D86 D87 D88 F34 F41*R ; D01 D11 D10 D19 D18 D50 F73 ; R00735 G1887 G1854 G1843 D01 D11 D10 D19 D18 D32 D50 D76 D93 F73 ; R01392 G1912 G1854 G1843 D01 D11 D10 D19 D18 D31 D50 D76 D89 F73 ; P1638 P1592 F77 D01 ; P1069 P1058 P1592 P0964 H0260 F34 F77 H0033 H0044 H0011 P0055 D01 D10 ; L9999 L2528 L2506
Polymer Index [2.4]
018 ; ND03 ; Q9999 Q6644*R ; K9563 K9483 ; K9574 K9483 ; K9552 K9483 ; K9676*R ; N9999 N6177*R ; B9999 B4988*R B4977 B4740
Polymer Index [2.5]
018 ; C999 C306 ; C999 C000*R
Polymer Index [3.1]
018 ; P8015 P0975 P0964 D01 D10 D11 D50 D83 F34

Polymer Index [3.2]
018 ; B9999 B4900 B4740
Polymer Index [4.1]
018 ; P0964*R F34 D01
Polymer Index [4.2]
018 ; B9999 B5094 B4977 B4740

SECONDARY-ACC-NO:
CPI Secondary Accession Numbers: C1998-114964
Non-CPI Secondary Accession Numbers: N1998-295803